

How Many People Live in New Jersey?

Description:

Students will practice writing statistical and non-statistical questions.

Standard:

CCSS.Math.Content.6.SP.A.1 :Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.

Total Population: Counties in New Jersey	
County	Population
Atlantic County	274,549
Bergen County	905,116
Burlington County	448,734
Camden County	513,657
Cape May County	97,265
Cumberland County	156,898
Essex County	783,969
Gloucester County	288,288
Hudson County	634,266
Hunterdon County	128,349
Mercer County	366,513
Middlesex County	809,858
Monmouth County	630,380
Morris County	492,276
Ocean County	576,567
Passaic County	501,226
Salem County	66,083
Somerset County	323,444
Sussex County	149,265
Union County	536,499
Warren County	108,692
Total	8,791,894
P1, Universe: Total Population, 2010 Census Summary File 1	

Activity Instructions for Students

Every 10 years, the U.S. Census Bureau conducts the census, which counts every resident in the United States, where they are living on April 1. Data are collected from every residence in the country – that’s more than 130 million addresses! It is a big task, but it is also an important one. The data from the census help us answer questions about where and how people in the United States live.

Businesses, government, and individuals often use data from the census to help them answer questions about a topic they are researching. There are two types of questions that data are used to help answer – statistical and non-statistical.

A **statistical question** is a question that you do not expect to be answered with a single response. Instead, you expect variation, or a variety of answers to the single question. For example, “How many people live in counties in New Jersey?” is a **statistical question**, because it cannot be answered with a single number. There are 21 counties in New Jersey, so we can expect that this **statistical question** will produce 21 answers.

A question is **non-statistical** if it can be answered with a single response. For example, “How many people lived in New Jersey on April 1, 2010?” is not a statistical question, because there is no variation in the answer. It can be answered with a single response, in this case, a single number.

Activity Assessment

The data table below contains data from the 2010 Census. Use it to answer the statistical question, “How many people live in counties in New Jersey?”

Now practice creating your own questions. Create **five** statistical questions, and **five** questions that are not statistical, about the population of New Jersey. If possible, answer the questions you have created, using the data set provided.

Students should list the population for each county listed in the data table. The order is not important.

[274,549, 905,116, 448,734, 513,657, 97,265, 156,898, 783,969, 288,288, 634,266, 128,349, 366,513, 809,858, 630,380, 492,276, 576,567, 501,226, 66,083, 323,444, 149,265, 536,499, 108,692]

Facilitate a classroom discussion, and have students share some of the questions they created.

Examine why the questions students created are statistical or non-statistical and discuss how answers for statistical questions differ from those that are non-statistical.

Teacher's Notes

Learning Objectives

Students will:

- Create questions that are statistical and explain why those questions are statistical.
- Create questions that are not statistical, and explain why those questions are not statistical.
- Understand what variation is expected when answering statistical questions.

Instructions for Teachers

Before this Activity

If needed, review the following terms and concepts:

- **Statistical question** – a question that you don't expect to render a single answer, you expect a variety of answers to the single question. For example, "How old are the students in my school?" is a statistical question because it is expected that there is variability in students ages.
- **Non-statistical question** – a question that is expected to render a single answer. For example, "How old am I?" is not a statistical question because the question will render a single answer.
- **Data distribution** – a set of data collected to answer a statistical question, has a distribution which can be described by its center, spread, and overall shape.
- **Decennial census** – Every 10 years, the U.S. Census Bureau conducts the decennial census, which counts every resident in the United States where they are living on April 1. It is mandated by Article I, Section 2 of the Constitution. The data collected by the decennial census determine the number of seats each state has in the U.S. House of Representatives and is also used to distribute billions of dollars in federal funds to local communities.

Have students read the "Activity Instructions for Students" and answer any questions they have before starting the activity.

You may want to answer the example question as a class, and discuss the answer before students begin creating their own questions.

During this Activity

Monitor students as they work.

After this Activity

Facilitate a classroom discussion to address differences in students' responses and address any common misunderstandings.